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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,207

06/30/2006

Michael A. Levy

3165-140

8175

6449

7590

03/20/2009

ROTHWELL, FIGG, ERNST & MANBECK, P.C.

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SUITE 800

WASHINGTON, DC 20005

EXAMINER

ROBINSON, BINTA M

ART UNIT

PAPER NUMBER

1625

NOTIFICATION DATE

DELIVERY MODE

03/20/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,207	<b>Applicant(s)</b> LEVY, MICHAEL A.	
	<b>Examiner</b> BINTA M. ROBINSON	<b>Art Unit</b> 1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-14, 16-18, 20-30, 32-35, 37-47 and 49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14, 16-18, 20-30, 32-35, 37-47, 49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

**1. Detailed Action**

2. The Finality of the office action dated 10/9/08 is withdrawn in light of the new rejections made below. All of the rejections made in the Final Office action are rendered moot in light of applicant's amendment and remarks filed 1/7/09.

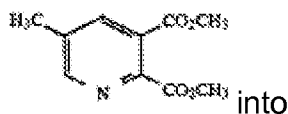
**3. (new rejections)**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

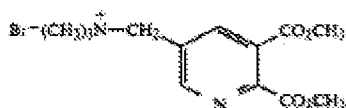
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16-18, 20-30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strong et. al.

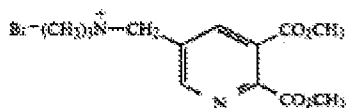
6. Strong teaches the process of converting



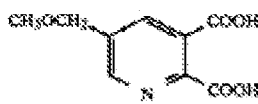
into



using 1,3-dibromo-5,5-dimethylhydantoin and converting



into



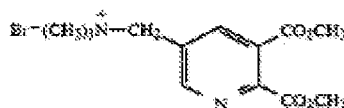
using a saponification reaction and

acidification.

7. One of the primary differences between the Strong process and instant process is the nondisclosure of this bromination step in the instant process. However, the instant process does not exclude this step because of the use of the open-ended language

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“comprising”. The particular reaction conditions between the prior art and instant process also differ, however, the open-ended language of “comprising” in the instant process also does not exclude the prior art reaction conditions. Additionally, it would have been obvious to one of ordinary skill in the art to optimize reaction conditions. Another primary difference between the prior art process and the instant process is the use of an oxidizing reagent to further purify the corresponding dicarboxylic acid product



obtained. The prior art process converts into an ether via a nucleophilic reaction using sodium methoxide to introduce the methoxy group, and a hydrolysis step follows, leading into the corresponding dicarboxylate using NaOH, and then an acidification step to create the corresponding dicarboxylic acid using H<sub>2</sub>SO<sub>4</sub>. The instant process does not disclose this nucleophilic step in which the methoxy group is introduced into the product through use of sodium methoxide however, this step is not excluded from the instant process because of the open ended- language of “comprising”. The instant process uses an oxidizing agent to obtain a pure product, however, the prior art process does not use an oxidizing agent. However, the prior art process obtains a product with greater than 99% purity which is greater than the purity of 98.9% purity obtained in Example 1, page 12 of the specification. In the absence of a showing of non-obvious and unexpected results through use of the oxidizing reagent, and particular reaction conditions, it would have been obvious to use a saponification and acidification reaction to obtain in high purity a pyridine 2,3-pyridine dicarboxylic acid. Modifying the prior art reaction through use of an oxidizing agent to obtain a

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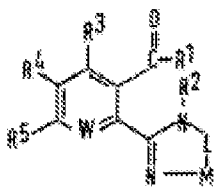
pyridine-2,3-dicarboxylic acid does not seem to have improved the purity of the prior art reaction.

a. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 33-34, 37-47, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Astles et. al. (GB 21192877).

Astles et. al. teaches the process of making herbicidal imidazolinyl compounds of



formula I, (which are herbicides) by saponification of a solution of a 2,3-pyridine dicarboxylic acid ester of formula V, see lines 35-40, page 4, wherein R11 is an alkyl group, R3 and R4, is halogen, hydrogen, or alkyl, R5 is hydrogen, halogen, and one of R3, R4, and R5 is Q which is an alkyl group. One of the primary differences between the prior art reaction and the instant reaction is that the 2,3-pyridine dicarboxylic acid ester reactant is brominated in the prior art process, but this step is not disclosed in the instant process - however, the instant process does not exclude this step, because of the use of the language "comprising" which is open-ended. The halogenated pyridine is then reacted with a nucleophile in the prior art process in standard reaction conditions for introduction of a nucleophile. This nucleophilic step is not disclosed in the instant process. However, this nucleophilic step is not excluded

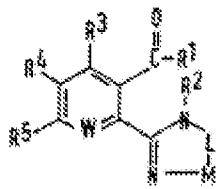
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from the instant process because of the use of the open-ended language "comprising".

The dicarboxylic acid is then prepared in the prior art process as it is in the instant process by a saponification reaction in which the corresponding ester is hydrolyzed by adding a base, preferably sodium hydroxide. The corresponding acid anhydride, is then prepared from the diacid by heating it with a dicarboxylic acid anhydride, at the reflux temperature. This step is not explicitly disclosed in the instant process claims, however, page 11, of the specification does disclose that the diacid can be converted to the corresponding herbicidal 2-(2-imiazolin-2-yl)nicotinic acids and esters, through the corresponding anhydride. The comprising language in the instant claims, does not exclude this step. The final product is prepared by oxidation of the diester precursor with oxidizing agents such as hydrogen peroxide, or peracids. See pages 4, lines 30-65 and page 5, lines 1-5. It would have been obvious to one of ordinary skill in the art to prepare a genus of compounds which are herbicides by saponification of 2,3-dicarboxylic acid esters and acidification, and oxidation, since this is what has been done in the prior art in Astles et. al.

9. Claims 1-3, 5-14, 16-18, 20-30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Astles et. al. (GB 21192877).

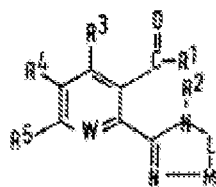
10. Astles et. al. teaches the process of making herbicidal imidazolinyl compounds of



formula I, (which are herbicides) by saponification of a solution of a 2,3-dicarboxylic acid ester of formula V, see lines 35-40, page 4, wherein R11 is an

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alkyl group, R3 and R4, is halogen, hydrogen, or alkyl, R5 is hydrogen, halogen, and one of R3, R4, and R5 is Q which is an alkyl group. One of the primary differences between the prior art process and the instant process, is that in these claims, the step of



converting the 2,3-dicarboxylic acid ester to is not explicitly disclosed, as it is in the prior art, however, it is neither excluded, but can be encompassed by the open-ended language "comprising" in the instant claims. Another one of the primary differences between the prior art reaction and the instant reaction is that the 2,3-dicarboxylic acid ester reactant is brominated in the prior art process, but this step is not disclosed in the instant process - however, the instant process does not exclude this step, because of the use of the language "comprising" which is open-ended. The halogenated pyridine is then reacted with a nucleophile in the prior art process in standard reaction conditions for introduction of a nucleophile. This nucleophilic step is not disclosed in the instant process. However, this nucleophilic step is not excluded from the instant process because of the use of the open-ended language "comprising". The dicarboxylic acid is then prepared in the prior art process as it is in the instant process by a saponification reaction in which the corresponding ester is hydrolyzed by adding a base, preferably sodium hydroxide. The corresponding acid anhydride, is then prepared from the diacid by heating it with a dicarboxylic acid anhydride, at the reflux temperature. This step is not explicitly disclosed in the instant process claims, however, page 11, of the specification does disclose that the diacid can be converted to the

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corresponding herbicidal 2-(2-imiazolin-2-yl)nicotinic acids and esters, through the corresponding anhydride. The comprising language in the instant claims, does not exclude this step. The final product is prepared by oxidation of the diester precursor with oxidizing agents such as hydrogen peroxide, or peracids. See pages 4, lines 30-65 and page 5, lines 1-5. In the absence of a showing of non-obvious and unexpected results through particular reaction conditions, it would have been obvious to use a saponification and acidification reaction to obtain in high purity a pyridine 2,3-dicarboxylic acid and to use an oxidizing agent in the reaction, which does not seem to have improved upon the purity of the yields in the prior art process.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 20-21 recite the limitation "Claim 19" in line 1. There is insufficient antecedent basis for this limitation in the claim.

13. Claims 37-38 recite the limitation "Claim 36" in line 1. There is insufficient antecedent basis for this limitation in the claim.

14. Claims 33-34, 37-47, 49 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the conversion of the diacid to the herbicidal 2-(2-imidazolin-2-yl)nicotinic acids.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binta M. Robinson whose telephone number is (571) 272-0692. The examiner can normally be reached on M-F (9:30-6:00).



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Janet Andres can be reached on 571-272-0670.

A facsimile center has been established. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier numbers for accessing the facsimile machine are (703)308-4242, (703)305-3592, and (703)305-3014.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

15. /Binta M Robinson/

16. Examiner, Art Unit 1625

/Janet L. Andres/

Supervisory Patent Examiner, Art Unit 1625